

Preserving Our Nuclear History

A “Hot” Topic

Frederic J. Athearn

As the Cold War winds to an end, the nuclear industry has retracted on all fronts. Not only have the bomb plants shut down, but so too have the many thousands of uranium mines in the western United States.

The nuclear industry dates back to at least 1896 when it was discovered that a strange ore called “carnotite” was radioactive. With Marie Curie’s discovery of the source of radiation, a new industry was born. The demand for radium soared. Prices approached \$175,000 per ounce of the material. It was used for both scientific and medical purposes. Some believed that radium could cure any disease—from cancer to warts.

Most of the world’s radium came from western Colorado at that time. Areas like Slick Rock, Paradox Valley, and Long Park had mines and, later, mills to refine the carnotite. The Joe Jr. Mill, built along the San Miguel River, at modern-day Uravan, was one of the largest radium producers. Mining camps dotted the rugged mesas of Colorado. Places like Calamity Camp, Monogram Mesa, Slick Rock, Outlaw Mesa, and numerous others housed hundreds of miners.

In the 1920s, rich deposits of pitchblende were discovered in the Belgian Congo. Radium prices dropped and carnotite mining in western Colorado slowed to a stop. The industry, however, survived by extracting vanadium from carnotite. This material is used to harden steel. In the mid-1930s, there was a revival of vanadium production. The Joe Jr. mill was refurbished and the company town of Uravan arose. Vanadium Corporation of America (VCA) built a mill near Naturita, CO, while Gateway Alloys constructed a facility at Gateway, CO.

World War II provided great demand for vanadium. As the mines and mills of western Colorado poured out this alloy, the U.S. Army sent secret teams into the

region to study the waste piles for their uranium potential. The Manhattan Project, as atomic bomb development was dubbed, found that the waste piles could be reprocessed for uranium. That was vital to the bomb effort.

In 1943 plants were built at Durango, and Uravan, CO, to reprocess tailings. The “yellowcake” that came from the mills eventually went to Oak Ridge, TN. After enrichment, the uranium was sent to Los Alamos, NM, and used for the first atomic bombs. The two bombs dropped on Japan contained Colorado uranium, thus making western Colorado’s contribution to the dawning of the nuclear age quite significant.

After World War II ended, the Cold War began. The federal government guaranteed to buy all the uranium output in the nation—purchases that were considered vital for national security. The newly created Atomic Energy Commission (AEC) oversaw ore buying. Output on the Colorado Plateau boomed. Existing mines operated at full capacity as did the mills. Large operators like Climax Uranium Company, Union Carbide, and VCA signed contracts with the government to produce millions of pounds of yellowcake.

With stable prices and large bonuses, the last great mining boom of the 20th century began. Thousands of would-be miners rushed into western Colorado and eastern Utah armed with geiger counters, tents and jeeps. Hoping to strike it rich like prospector Charlie Steen had in Utah, they combed the Colorado Plateau looking for outcrops of carnotite.



The cookhouse/dining area of the Calamity Camp represents continual use from 1916 into the 1950s. This site is being stabilized and interpreted. BLM archival photo by the author (1993).

Hyped by the national media, uranium miners poured into an area that was totally unprepared for them. This was a very isolated land with few roads, and no amenities. Miners lived in camps, or at isolated mines. There were no schools, no stores, no post offices, no gasoline stations, no water, no sewers, no telephones, no electricity; in fact, no signs of civilization.

Prospectors and their families lived in tar paper shacks, trailers, tents, log cabins, and even caves. This was in the

early 1950s! Conditions must have been like the great Klondike rush or perhaps the mining rushes of the 1870s, except this time the miners had cars.

The “boom” lasted until 1958 when the AEC stopped buying uranium. Mining and milling did continue, and production and prices both increased well into the 1980s. Commercial reactors used large quantities of uranium. Most of the market was oriented to these users. However, foreign supplies (such as Canada) and the lack of new

nuclear facilities contributed to the demise of the uranium industry in western Colorado. The big mill at Uravan shut down in 1985, and the mines were closed by 1990.

What is left behind now is the remains of a 100-year-old industry. There are mines, equipment, adits, waste piles, mills, and campsites all over the Colorado Plateau. These are the remains of the three phases of carnotite mining: radium, vanadium and uranium.

The problem lies in the fact that most, if not all, of these sites are being "remediated." That is, they are being removed and the area cleaned up. There are several reasons for this. In some cases the mining companies are under court order to reduce or eliminate radioactive pollution. The mill at Uravan, for example, will be totally torn down, chopped into small pieces, and buried under 40' of dirt and 10' of rock. The burial pit is designed for a 1,000-year life and has a sophisticated drainage system that prevents run-off into streams and rivers. The company also has a large bond they would like to recover. Fortunately, the original 1916 wooden boardinghouse is not contaminated and will be saved. The local historical society proposes to make a museum from this historic structure.

Another reason for demolition is bonding. Most mining companies were required to post bonds prior to, and during, their operations. The purpose was to assure that clean-up would occur upon abandonment. Naturally, the companies want to get their bond money back. To do so, they will clean up a site to federal government specifications. In the case of Bureau of Land Management (BLM) lands, the BLM provides the requirements. In the case of AEC lands, the Department of Energy dictates the standards. The problem is that the agencies want the sites cleaned up and the companies want their money back.

In 1987 an old radium camp called Calamity Camp was "rediscovered" by the Grand Junction, CO, BLM Resource Area archeologist. Dating from 1916, it is one of the oldest such sites in the region. It was recorded, mapped, and archivally photographed in 1988. From that project, it was realized that there were hundreds of sites in the region that were about to be destroyed by removal.

That precipitated a recordation project lasting to the present. The BLM Districts in Grand Junction and Montrose, CO, are undertaking a systematic survey of uranium mining areas. As part of this process, archival (medium format) photographs were made of these sites. Everything from the huge Uravan Mill to small mines in Mesa County were photographed. Colorado State site forms are filled out, and maps/drawings are completed. As remediation has speeded up, so too has the recordation effort.

BLM has recorded sites ranging from the 1916 radium camp to 1970s uranium mines complete with Butler buildings. A number of these sites were determined eligible for inclusion in the National Register of Historic Places. Hundreds of photographs have been shot. The Uravan Mill (private land), alone, took 33 rolls of film.



This historic uranium mill at Uravan, CO, will be demolished because of contamination. BLM archival photo by the author.

All the photos are finished to archival standards and are kept in archival holders. BLM is notified by a mining company prior to demolition so we can get out to a site and record it prior to remediation.

One of the most tangible results of this project was the creation of a traveling photo exhibit featuring 30 contemporary photographs describing the history of the carnotite industry in western Colorado. Opened in November 1993, the exhibit has been on the road across the nation and is booked well into 1995. The exhibit is available, free, to museums, schools, libraries, etc., through the BLM Colorado State Office.

We have found that recordation through photography and mapping is the most cost-effective method of site preservation. Historic uranium sites pose a unique challenge. They are not only radioactive, but they also constitute a health and safety hazard. In most cases, they cannot be easily decontaminated. Smaller pieces of equipment might be cleaned up for display, but most of the buildings, adits, and associated mining equipment must be buried for safety reasons.

This technique can also be used to record for the archives nuclear sites such as reactors, manufacturing plants (such as Hanford, Washington, or Rocky Flats, CO), and other radioactive places that must be demolished for safety and health reasons. We hope that BLM's efforts at uranium mining site recordation will serve as an example for other agencies (i.e., Department of Energy and U.S. Army) to create cost-effective programs that will at least create a record of our nuclear history.

Dr. Frederic J. Athearn is the State Historian and the Cultural Heritage Program Manager for Colorado. He is the author of five books and numerous articles on regional history, and created the traveling exhibit mentioned above. For more information, you may call Dr. Athearn at 303-239-3735.